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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,869	02/28/2002	Wai Yew Lo	SC11867MP	7744

23330 7590 06/06/2003

MOTOROLA, INC.
CORPORATE LAW DEPARTMENT - #56-238
3102 NORTH 56TH STREET
PHOENIX, AZ 85018

EXAMINER

CAO, PHAT X

ART UNIT PAPER NUMBER

2814

DATE MAILED: 06/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/085,869

Applicant(s)

LO ET AL.

Examiner

Phat X. Cao

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 19-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-18 in Paper No. 4 is acknowledged. The traversal is on the ground(s) that the Applicants elect with traverse. This is not found persuasive because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

2. Claim 12 is objected to because of the following informalities: in claim 12, third line from the last line "the first and second dice" should be changed to "the first and second dies". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Glenn et al (US. 6,530,515).

Glenn (Fig. 12) discloses a stacked multichip package, comprising: a base carrier 1202 having a top side and a bottom side; a bottom integrated circuit die 412 having a

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bottom surface attached to the base carrier top side by an adhesive material layer (not shown, see column 15, lines 25-26), and an opposing, top surface, the top surface having a peripheral area including a plurality of first bonding pads 416 and a central area; a bead 450 of epoxy (column 12, lines 50-51) formed on the top surface of the bottom die between the peripheral area and the central area; and a top integrated circuit die 452 having a bottom surface, wherein the top die 452 is positioned over the bottom die and the bottom surface of the top die is attached to the top surface of the bottom die via the bead 450, wherein the bead 450 maintains a predetermined spacing between the bottom die and the top die.

5. Claims 1-4, 6, 9-15 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Glenn et al (US. 2002/0195624).

Glenn (Figs. 7 and 8) discloses a stacked multichip package, comprising: a base carrier 12 having a top side and a bottom side, the top side including a plurality of first leads and a plurality of second leads 26 (see top view shown in Fig. 1); a bottom integrated circuit die 14 having a bottom surface attached to the base carrier top side, and an opposing, top surface, the top surface having a peripheral area including a plurality of first bonding pads and a central area, wherein the bottom die 14 is electrically connected to the base carrier with first wires 38, the first wires 38 having first ends electrically connected to the first bonding pads and second ends electrically connected to the first leads; a bead 40 of adhesive material (par. [0056]) formed on the top surface of the bottom die between the peripheral area and the central area; an adhesive material (52,50,54) of epoxy resin (par. [0053]) formed in the central area on

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the top surface of the bottom die, the adhesive material being surrounded by the bead 40; a top integrated circuit die 16 having a bottom surface, wherein the top die 16 is the same size with or larger than the bottom die (par. [0055]) and is attached to the top surface of the bottom die 14 via the bead 40 and the adhesive material (55,50,52), and the bead 40 maintains a predetermined spacing between the bottom die and the top die, and wherein the top die 16 includes a plurality of second bonding pads 34 located in a peripheral area on a top surface thereof and wherein the top die 16 is electrically connected to the base carrier with second wires 38, the second wires 38 having first ends electrically connected to the second bonding pads 34 and second ends electrically connected to the second leads 26; and an encapsulant 60 (see Fig. 2) covering the first and second dies, the first and second wires and at least a portion of the top side of the base carrier.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 7-8 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al (US. 2002/0195624) in view of Glenn et al (US. 6,530,515).

Glenn ('624) does not disclose the bead 40 (Fig. 7) comprising epoxy.

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However, Glenn ('624) discloses the bead 40 comprising a wide variety of known types of adhesives (par. [0036]). Accordingly, it would have been obvious to form the adhesive bead 40 with epoxy because epoxy is a well known adhesive material. Such well known epoxy adhesive bead is taught by the epoxy adhesive bead 450 of Glenn ('515) (see Fig. 12).

8. Claims 6-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al (US. 6,530,515) in view of Watson (US. 2003/0057538).

With respect to claims 6-8, 12-13, and 16-18, Glenn ('515) does not disclose the adhesive material formed in the central area on the top surface of the bottom die.

However, Watson (Fig. 10) teaches the forming of a bead 14 on the top surface of the bottom die between the peripheral area and the central area, and the forming of the adhesive material 13 in the central area on the top surface of the bottom die. Accordingly, it would have been obvious to modify the stacked package of Glenn ('515) by forming the adhesive material in the central area on the top surface of the bottom die for providing a mechanism to control the height of the top die from the surface of the bottom die, as taught by Watson (par. [0037]).

9. Claims 3-4 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al (US. 6,530,515) in view of Glenn et al (US. 2002/0195624).

Glenn ('515)'s Fig. 12 does not disclose the top die is similar size with or larger than the bottom die.

However, Glenn ('624) teaches the forming of the top die 16 being similar size with or larger than the bottom die 14 (see Fig. 8 and par. [0055]). Accordingly, it would

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have been obvious to form the top and bottom dies of Glenn ('515) with the sizes as set forth above because changing the size of parts of an invention is generally recognized as being within the level of ordinary skill in the art. In Gardner v. TEC Systems, Inc., 725 F. 2d 1338, 220 USPQ 777 (Fed. Cir. 1984), Cert. Denied, 469 U.S. 830, 225 USPQ 232 (1984).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The examiner can normally be reached on Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PC
June 1, 2003


PHAT X. CAO
PRIMARY EXAMINER